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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/055,499

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Jin-Yuan Lee

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08/09/2006

NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION
P.O. BOX 506
MERRIFIELD, VA 22116

EXAMINER

THAI, LUAN C

ART UNIT

PAPER NUMBER

2891

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,499

Applicant(s)

LEE ET AL.

Examiner

Luan Thai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 281-286 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 281-286 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office action is responsive to the amendment filed June 01, 2006.

Claims **281-286** are pending in this application.

Claims **1-280** have been cancelled.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 281 is rejected under 35 U.S.C. 102(b) as being anticipated by Sakurai (6,078,104 of record) and by Kim et al. (6,004,867 of record) separately.

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding 281, Sakurai (see specifically figures 1-3, Col. 3, line 27 to Col. 7, line 25) disclose a method for fabricating a circuitry comprising: joining a die (1) and a substrate (5), wherein the die (1) has a top surface at a horizontal level; and after the joining the die and the

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substrate, depositing a gold bump (3) (Col. 5, lines 65+ and Col. 6, lines 51+) over the horizontal level.

Regarding 281, Kim et al (see specifically figures 4 and 5A-5E, Col. 2, line 54 to Col. 7, line 22) disclose a method for fabricating a circuitry comprising: joining a dies (310) and a substrate (320), wherein each of dies (310) has a top surface at a horizontal level; and after the joining the die and the substrate, depositing a gold bump (330) over the horizontal level (Col. 6, lines 59+).

3. Claim 285 is rejected under 35 U.S.C. 102(e) as being anticipated by Copeland (6,439,728).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 285, Copeland (see specifically figure 4A-4B, Col. 4, lines 60+s) discloses a method for fabricating a circuitry component, comprising: providing a die (220) having a top surface at a horizontal level; and depositing a micro electronic mechanical sensor (MEMS) (228) over the horizontal level.

4. Claim 286 is rejected under 35 U.S.C. 102(e) as being anticipated by Sekine et al. (6,495,914).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claim 286, Sekine et al. (see specifically figures 4a-4d, Col. 6, lines 1+) discloses a method for fabricating a circuitry component, comprising: depositing an insulating layer (48) over a circuitry element (47); curing the insulating layer (48) (Col. 6, lines 23+); grinding the insulating layer (Col. 6, lines 24+); and depositing a metal layer (51) over the insulating layer (Fig. 4d, Col. 6, lines 31+).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 282 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger et al. (6,396,148 of record) in view of Wojnarowski et al. (5,576,517 of record).

Regarding claim 282, Eichelberger et al. disclose (see specifically figures 1-2) a method for fabricating a circuitry, comprising: joining multiple dies (102) and a substrate (101); depositing an insulation layer (106) over the multiple dies (102) and the substrate (101), separating the substrate into multiple portions (Col. 8, lines 46+). Eichelberger et al. do not explicitly teach the insulating layer comprising a porous structure.

Wojnarowski et al. while related to a similar structure design teach (see specifically figures 1-11) teach an insulating layer (20) comprising a porous structure being deposited over the die (14) (Col. 5, lines 9+), which is mounted on the substrate (10). The purpose of using the insulating layer comprised a porous structure is to reduce the dielectric constant of the insulating layer (as close to 1 as possible and not greater than about 2, Col. 3, lines 30+) so that it can reduce the need for laser ablation of material situated over air bridge structures and other microwave structures and devices (Col. 3, lines 45+). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that applying the low dielectric constant porous layer, as taught by Wojnarowski et al., to Eichelberger et al.'s structure device would

have been beneficial because Wojnarowski et al.'s teachings help to provide a low dielectric constant insulating layer which can apply to form high frequency circuits and reduce the need for laser ablation of material situated over air bridge structures and other microwave structures and devices.

11. Claims 283-284 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger et al. (6,396,148 of record, hereinafter "148") in view of Eichelberger et al. (6,159,767 of record, hereinafter "Eich-767").

Regarding claim 283, "Eich-148" (see specifically figures see specifically figures 1-2, Col. 4, lines 9+) disclose a method for fabricating a circuitry component comprising: joining multiple dies (102) and a substrate (101), wherein the dies have a top surface at a horizontal level; and separating the substrate into multiple portions to create a single package as show in Fig. 1 (Col. 8, lines 46+). "Eich-148" fail to teach depositing a passive device (or a waveguide) over the horizontal level.

"Eich-767" while related to a similar method of fabricating a circuitry component teach (see specifically figure 6) a passive device (220) can be deposited over multiple dies (102) for mixed signals applications (Col. 12, lines 11+).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify "Eich-148" method of making the circuitry component by adding positing a passive device over the horizontal level as taught by "Eich-767" for the purpose of mixed signals applications and such modification is held to be within the ordinary designing ability expected of a person skilled in the art.

Regarding claim 284, although the proposed method of "Eich-148" and "Eich-767" does not specifying the passive device being a waveguide, the selection of the passive device as a waveguide would have also been obvious for similar reasons set forth above.

12. The following reference(s) is/are cited as of interest to this application:

U.S. Pat. No. 6,205,032 of record (Col. 4, lines 32+) is cited for showing that waveguides can be considered as passive devices.

Conclusion

13. Applicant's arguments with respect to claims **281-286** have been fully considered, but they are deemed to be moot in view of the new grounds of rejection.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action because the newly added limitations (e.g., the underlined portions) into claims 281-286 raise new issues that would require further consideration and/or search. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is 571-272-1935. The examiner can normally be reached on 6:30 AM - 5:00 PM, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Luan Thai

Primary Examiner

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August 5, 2006